

Roland A. Fuller
(248) 944-6518

DAIMLERCHRYSLER

DaimlerChrysler
Intellectual Capital Company LLC.

RECEIVED
CENTRAL FAX CENTER

JUL 25 2006

Fax

To: Examiner Vanel Frenel

From: Roland A. Fuller, Reg. 31,160

Fax:
(571) 273-8300

Pages: 44 + cover

Phone: (571) 272-6769

Date: July 25, 2006

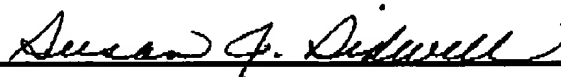
Group Art Unit: 3626

Re: Application No. 09/800,697

See the attached Appeal Brief and Fee Transmittal

I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office (Fax No. (571) 273-8300) on July 25, 2006.

Susan J. Sidwell



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**FEE TRANSMITTAL
for FY 2005**

Effective 10/01/2004. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT (\$)** 500

Complete if Known

RECEIVED**CENTRAL FAX CENTER****JUL 25 2006**

Application Number	09/800,697
Filing Date	March 7, 2001
First Named Inventor	McIntosh et al.
Examiner Name	V. Frenel
Art Unit	3626
Attorney Docket No.	705445US1

METHOD OF PAYMENT (check all that apply)☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None☒ Deposit Account:Deposit
Account
Number

03-1800

Deposit
Account
Name

DaimlerChrysler Intellectual Capital Company LLC

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments
☒ Charge any additional fee(s) during the pendency of this application
☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.
FEE CALCULATION**1. BASIC FILING FEE**

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1011	300	2011	150	Utility filing fee	
1012	200	2012	100	Design filing fee	
1013	200	2013	100	Plant filing fee	
1014	300	2014	150	Reissue filing fee	
1005	200	2005	100	Provisional filing fee	
SUBTOTAL (1)					(\$) 0

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	20 **	=	0	X	Fee from below	=	0	Fee Paid
Independent Claims	3 **	=	0	X		=	0	
Multiple Dependent		=				=	0	

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1202	50	2202	25	Claims in excess of 20	
1201	200	2201	100	Independent claims in excess of 3	
1203	360	2203	180	Multiple dependent claim, if not paid	
1204	200	2204	100	** Reissue independent claims over original patent	
1205	50	2205	25	** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)					(\$)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)**3. ADDITIONAL FEES**

Large Entity Small Entity

Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	120	2251	60	Extension for reply within first month	
1252	450	2252	225	Extension for reply within second month	
1253	1020	2253	510	Extension for reply within third month	
1254	1,580	2254	785	Extension for reply within fourth month	
1255	2,160	2255	1080	Extension for reply within fifth month	
1401	500	2401	250	Notice of Appeal	500
1402	500	2402	250	Filing a brief in support of an appeal	
1403	1000	2403	500	Request for oral hearing	
1452	500	2452	250	Petition to revive - unavoidable	
1453	1500	2453	750	Petition to revive - unintentional	
1501	1400	2501	700	Utility issue fee (or reissue)	
1502	800	2502	400	Design issue fee	
1450	130	1450	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17 (c)	
1808	180	1808	180	Submission of Information Disclosure Sheet	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	790	2809	395	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	790	2810	395	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	790	2801	395	Request for Continued Examination (RCE)	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid **SUBTOTAL (3)** **(\$)** 500**4. SEARCH/EXAMINATION FEES**

Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description	Fee Paid
1111	500	2111	250	Utility Search Fee	
1112	100	2112	50	Design Search Fee	
1113	300	2113	150	Plant Search Fee	
1114	500	2114	250	Reissue Search Fee	
1311	200	2311	100	Utility Examination Fee	
1312	130	2312	65	Design Examination Fee	
1313	180	2313	90	Plant Examination Fee	
1314	600	2314	300	Reissue Examination Fee	

SUBTOTAL (4) **(\$)** 0**TOTAL FEES ENCLOSED: \$500****SUBMITTED BY**

Name (Print/Type)	Roland A. Fuller III	Registration No. (Attorney/Agent)	31.160	Telephone	(248) 644-6818
Signature	<i>R. A. Fuller III</i>	Date	7-25-06		

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Application Serial No.: 09/800,697

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Atty Dkt No.: 705445US1

JUL 25 2006

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 09/800,697

Filing Date: March 7, 2001

Applicant: McIntosh, et al.

Group Art Unit: 3626

Examiner: V. Frenel

Title: COMPUTER-IMPLEMENTED VEHICLE REPAIR CLAIMS
RULES GENERATOR SYSTEM

Attorney Docket: 705445US1

CERTIFICATE OF FACSIMILE TRANSMISSION (37 CFR 1.8)

Date of transmission: 7/25/2006. I hereby certify that this Appeal Brief is being facsimile transmitted to the United States Patent and Trademark Office at fax number 571-273-8300 on the date indicated above.

Susan J. Sidwell
NAME OF PERSON MAILING PAPER

Susan J. Sidwell
SIGNATURE

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

Further to the Notice of Appeal filed June 1, 2006, applicants submit the following Appeal Brief.

07/26/2006 TL0111 00000027 031800 09800697
01 FC:1402 500.00 DA

Application Serial No.: 09/800,697

Atty Dkt No.: 705445US1

I. REAL PARTY IN INTEREST

The real party in interest is DaimlerChrysler Corporation, having a place of business at 800 Chrysler Drive East, Auburn Hills, Michigan 48326 (hereinafter "DCC"). An assignment was recorded in the U.S. Patent and Trademark Office on June 11, 2001 at Reel/Frame: 011652/0325.

II. RELATED APPEALS AND INTERFERENCES

An appeal is pending in USSN 09/801,298 for a Computer Implemented Vehicle Repair Claims Processing System. There are no other appeals or interferences related to the present appeal.

III. STATUS OF CLAIMS

Claims 1 – 20 are pending in this application. Claims 1 – 20 stand rejected in the final Office Action mailed March 3, 2006. A copy of the claims on appeal is attached as Appendix A.

IV. STATUS OF AMENDMENTS

There have been no amendments submitted subsequent to the final rejection.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Applicants' invention as claimed in independent claims 1 and 11 is generally directed to a computer-implemented warranty knowledge base construction system (claim 1) and method (claim 11). With reference to the specification, independent claim 1 requires:

A computer-implemented warranty knowledge base construction system, comprising:

a user interface [GUI 104, Specification p. 7, lines 5 – 7] for receiving a first rule related to vehicle repair claim processing;

a rules syntax data store that stores syntax rules for constructing repair claim-related

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rules [Specification p. 2, lines 20 – 21; consistency checking software of the Aion system, Specification p. 8, lines 1 – 5];

a knowledge base generator module connected to the user interface and to the rules syntax data store for determining whether the first rule is in an acceptable syntax based upon the stored syntax rules [Specification p. 2, line 21 – p. 3, line 1; knowledge base generator software module 108, Specification p. 8, lines 2 – 5];

wherein the first rule is used in a knowledge base system to process repair claims [Specification p. 3, lines 1 – 2; knowledge base expert system 34, Specification p. 3, line 20 to p. 4, line 3]

With reference to the specification, independent claim 11 requires:

A computer-implemented warranty knowledge base construction method, comprising the steps of:

receiving with a computer networked system a first rule related to vehicle repair claim processing [Specification p. 7, lines 5 – 7];

storing syntax rules in the computer networked system for constructing repair claim-related rules [Specification p. 2, lines 20 – 21; Specification p. 8, lines 1 – 5];

determining with the computer networked system whether the first rule is in an acceptable syntax based upon the stored syntax rules [Specification, p. 2, lines 20 – 21, Specification p. 8, lines 1 – 5]; and

wherein the first rule is used by the computer networked system in a knowledge base method to process repair claims [Specification p. 3, lines 1 -2; Specification p. 3, line 20 to p. 4, line 3]

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VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The issues in this appeal are:

1. Whether the Examiner erred in rejecting claims 11 – 14 under 35 U.S.C. § 103(a) as being unpatentable over Borghesi et al. (U.S. Pat. No. 5,950,169, Apte et al. (U.S. Pat. No. 5,970,464) in view of Aquila et al. (U.S. Pat. Pub. 2002/0035488)

2. Whether the Examiner erred in rejecting claims 1 – 10 and 15 – 20 under 35 U.S.C. § 103(a) as being unpatentable over Borghesi et al. (U.S. Pat. No. 5,950,169) in view of Apte et al. (U.S. Pat. No. 5,970,464)

VII. ARGUMENT

1. **The Examiner erred in rejecting claims 1 – 20 under 35 U.S.C. § 103(a).**

Applicants submit that the Examiner erred in rejecting claims 11 – 14 under 35 U.S.C. § 103(a) as being unpatentable over Borghesi et al. (U.S. Pat. No. 5,950,169, Apte et al. (U.S. Pat. No. 5,970,464) in view of Aquila et al. (U.S. Pat. Pub. 2002/0035488), and in rejecting claims 1 – 10 and 15 – 20 under 35 U.S.C. § 103(a) over Borghesi et al. (U.S. Pat. No. 5,950,169 in view of Apte et al. (U.S. Pat. No. 5,970,464).

Turning first to the rejection of claims 1 – 10 and 15 -20, the Examiner rejected them for the same reasons that they were rejected in the first Official Action mailed June 21, 2005. "Claims 1 – 10, and 15 – 20 have not been amended and are therefore rejected for the same reasons given in the previous Office Action, and incorporated herein. [Final Office Action mailed March 3, 2006, Section 4(D)]¹ In the Official mailed June 21, 2005, all the claims were rejected under 35 U.S.C. § 103(a) based on Borghesi et al. in view of Apte et al. Applicants submit that this rejection is not well taken.

Claim 1 is directed to a computer-implemented warranty knowledge base construction system. The Examiner takes the position that Borghesi discloses a computer-implemented warranty knowledge base construction system. Applicants submit that it does not. Borghesi is directed to a system and method for managing insurance claim processing. As such, it deals with processing an

¹ Curiously, the Examiner's only comment about applicants' arguments in their response to the Official Action mailed June 21, 2005 was "Applicant's arguments filed on 09/15/05 with respect to claims 1 – 20 have been considered but are moot in view of the new ground(s) of rejection." [See, Final Official Action mailed March 3, 2006, Section 5]

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insurance claim. It does not, however, deal with a system that constructs the rules by which the claim is processed. [See, e.g., Borghesi et al., Abstract]

Claim 1 further requires a user interface for receiving a first rule related to vehicle repair claim processing. The Examiner cites Borghesi et al. col. 1, lines 44 – 55 as disclosing a user interface for receiving a first rule related to repair claim processing. But what this section of Borghesi et al. discusses is the calculation of a repair cost estimate in different ways. It does not discuss a user interface that receives a first rule related to repair claim processing.

The Examiner, acknowledging that Borghesi et al does not disclose the limitations of claim 1 that require a rules syntax data store that stores syntax rules for constructing repair claim-related rules, and a knowledge base generator module connected to the user interface and to the rules syntax data store for determining whether the first rule is in an acceptable syntax based upon the stored syntax rules, takes the position that such features are known in the art, citing to Apte et al. (col. 3, lines 5 – 33; col. 9, lines 4 - 28). Applicants submit that Apte et al. fails to disclose such features. Apte et al. is directed to data mining based underwriting profitability analysis. Col. 3, lines 5 – 33 of Apte et al., which the Examiner cites as disclosing a rules syntax data store, discuss “running a data mining process on data in a data warehouse to “extract rules for statistically distinct subpopulations with homogenous pure premium characteristics based upon stand technology” [Apte et al., col. 3, lines 20 – 28]. Apte et al. then goes on to discuss that a “business analysis client 201 receives data from the data mining server kernel 102, and the risk group defined by the book of business is segmented into distinct segments by utilizing the pure premium rules extracted by data mining and historical claims and policy data. This generates several outputs. For example, a marketing output 202 might identify new opportunities, an actuarial output 203 might be an estimation of improved profitability, and an underwriting output 204 might suggest enhanced exception management.” [Apte et al., col. 3, lines 34 – 43] Thus, at best this section of Apte et al. discloses extracting rules. It does not, however, disclose constructing rules and applicants submit

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that constructing a new rule is not the same thing as extracting a rule from a set of existing rules. Further, Apte et al. fails to disclose a rules syntax data store that stores syntax rules for constructing repair claim-related rules.

The Examiner cites to Col. 9, lines 4 – 28 of Apte et al. as disclosing a knowledge generator module connected to the user interface and to the rules syntax data store for determining whether the first rule is in an acceptable syntax based upon the stored syntax rules. This section of Apte et al. discusses the flow diagram of Fig. 14, which is a flow diagram of the client/server scenario analysis process. [Apte et al., col. 9, lines 4, 5] The scenario analysis subsystem allows a user to determine the value of a P & C insurance product by specifying it to the system, and having the system provide critical business information about the product, segment by segment. [Apte et al., col. 8, lines 54 – 67] While Fig. 14 references testing a selected rule to a selected data set, it does so in the context of segmenting a specified data set by eligibility criteria and a rule set. As discussed in this section of Apte et al:

FIG. 14 is the flow diagram of the client/server scenario analysis process. The user specified data set, rule set, and product eligibility data are input in function block 1601. This is done by accessing local rule sets in client store 1602, rule sets in server store 1603 and meta-data in meta-data store 1604. The specified data set is segmented by eligibility criteria and the rule set in function block 1605. This is done by accessing data in server data store 1606 and making a call to the server to test the selected rule set to a selected data set in function block 1607. This is done by accessing data from the client local store 1602, the server store 1603, the meta-data store 1604 and the data store 1606. Then, in function block 1608, the segmentation table is displayed. The user is given three choices in user selection block 1609. The user can either select a column in selection block 1610, select a row in selection block 1611, or select a column in selection block 1612. If the user selects a column in selection block 1610, the table is resorted in function block 1613 and a return is made to function block 1607 to display the resorted table if the user selects a row, the rule editor on the rule is called in function block 1614 and a return is made to function block 1608. If the user selects a column in selection block 1612, the rule editor on eligibility criteria is called in function block 1615 and a return is made to function block 1608.

The scenario analysis result will first report on the gross statistics on how the product rule set covered the database, and within this coverage, using the base model, will be a detailed segmentation report that breaks down the coverage into

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individual segments, listed by the segments' coverage, percentage coverage, severity estimate, frequency estimate, pure premium, loss ratio, and other entries that may be of interest. In addition, the screen will permit the table to be sorted by any of these columns. This "what-if" style scenario analysis will assist the users to identify problems and opportunities with existing as well as new P&C products. [Apte et al., col. 9, lines 4 – 39]

There is no discussion, however, of determining whether any rule, let alone a rule which was received via a user interface, is in an acceptable syntax based upon stored syntax rules.

For these reasons, applicants submit that claim 1 is allowable over Borghesi et al. in view of Apte et al.

Dependent claim 2 is allowable as depending from claim 1. Dependent claim 2 further requires an integrity rules module connected to the knowledge base generator module in order to determine whether the first rule is consistent with respect to at least one of the warranty-related expert rules that is stored in the knowledge base. As discussed above, neither Borghesi et al. or Apte et al. address constructing rules, and in particular, do not address checking a newly received rule against existing warranty rules for consistency. In the Official Action mailed June 21, 2005, the Examiner cited to Col. 6, lines 1 – 32 of Borghesi et al. as disclosing this limitation. But this section of Borghesi et al. just discusses that certain information is stored in memory. More specifically:

The main memory includes a video memory which stores display format information which is displayed on the display monitor. The information stored in the video memory is used to refresh the display on the display monitor. The information may be text, graphics, or a combination thereof. The mass storage device stores a data base of text and graphics images that may be in compressed digital form. The digital data stored in the memory includes a database containing information on a plurality of automobiles including illustrations and replacement costs. The replacement cost, as the term is used here, refers to costs typically encountered for repairing or replacing parts and/or groups of parts of the damaged objects. These costs may include amounts needed for parts, labor, painting, edging, underside, refinishing, etc. The data base may include, for example, the replacement parts, times, procedures and footnotes for automobiles. Both the text and graphics may be stored in compressed form. The compressed graphics may use PCX, TIFF or other graphics image formats. [Borghesi et al. col. 6, lines 15 – 32]

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As can be seen, this section of Borghesi et al. does not address determining whether a new rule is consistent with existing rules, and thus does not disclose an integrity rules module connected to the knowledge base generator module in order to determine whether the first rule is consistent with respect to at least one of the warranty-related expert rules that is stored in the knowledge base as required by claim 2. Applicants submit that dependent claim 2 is allowable over Borghesi et al. in view of Apte et al. for this reason also.

Dependent claim 3 is allowable as depending indirectly from claim 1. Dependent claim 3 further requires a testing module for testing the knowledge base with testing scenarios. In an illustrative embodiment discussed in the application, forced test software module 116 provides warranty case test scenarios to test the new rules against the existing rules. Messages regarding any inconsistencies found during this testing are provided to the rules administrator 100 explaining the reasons behind the inconsistencies so that the rules administrator may provide corrective action. If no inconsistencies are found, the approval process software module 120 provides a structured environment for personnel other than the rules administrator to approve the knowledge base with the new rules. [Specification, p. 8, line 20 to p. 9, line 3] For the reasons discussed above, none of Borghesi et al. or Apte et al. address constructing rules. They thus also do not address testing the knowledge base with testing scenarios to determine whether there are any inconsistencies between a new rule and existing rules.

In the Official Action mailed June 21, 2005, the Examiner cites Apte et al., Fig. 13 and col. 8, line 54 to col. 9, lines 39 as disclosing the limitations of dependent claim 3. This section of Apte et al. discusses Scenario Analysis. And Scenario Analysis does not involve testing a knowledge base with testing scenarios to determine whether there are any inconsistencies between a new rule and existing rules. Rather, as explained in Apte et al., Scenario Analysis involves allowing a "user to determine the value of a P & C insurance product by specifying it to the system, and having the

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system provide critical business information about the product, segment by segment.” [Apte et al., col. 8, lines 56 – 60] This section then goes on to discuss the use of a user created rule set. While this section mentions that a call is made to the server to test the selected rule set to a selected data set, [Apte et al., col. 9, lines 13], this is not done for the purpose of testing a new rule against existing rules. Rather, it is done as part of inputting a user specified data set, rule set and product eligibility data to perform the scenario analysis. As described in Apte et al.:

FIG. 14 is the flow diagram of the client/server scenario analysis process. The user specified data set, rule set, and product eligibility data are input in function block 1601. This is done by accessing local rule sets in client store 1602, rule sets in server store 1603 and meta-data in meta-data store 1604. The specified data set is segmented by eligibility criteria and the rule set in function block 1605. This is done by accessing data in server data store 1606 and making a call to the server to test the selected rule set to a selected data set in function block 1607. This is done by accessing data from the client local store 1602, the server store 1603, the meta-data store 1604 and the data store 1606. Then, in function block 1608, the segmentation table is displayed. The user is given three choices in user selection block 1609. The user can either select a column in selection block 1610, select a row in selection block 1611, or select a column in selection block 1612. If the user selects a column in selection block 1610, the table is resorted in function block 1613 and a return is made to function block 1607 to display the resorted table if the user selects a row, the rule editor on the rule is called in function block 1614 and a return is made to function block 1608. If the user selects a column in selection block 1612, the rule editor on eligibility criteria is called in function block 1615 and a return is made to function block 1608.

The scenario analysis result will first report on the gross statistics on how the product rule set covered the database, and within this coverage, using the base model, will be a detailed segmentation report that breaks down the coverage into individual segments, listed by the segments' coverage, percentage coverage, severity estimate, frequency estimate, pure premium, loss ration, and other entries that may be of interest. In addition, the screen will permit the table to be sorted by any of these columns. This "what-if" style scenario analysis will assist the users to identify problems and opportunities with existing as well as new P&C products. [Apte et al., col. 9, lines 4 – 39]

As can be seen from the above quoted section of Apte et al., the results of scenario analysis do not include a new rule tested against a set of existing rules. Rather, with regard to rules, the scenario analysis result reports on how the product rule set covered the database. Applicants submit that Borghesi et al. thus fails to disclose the limitations of dependent claim 3 that requires a

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testing module for testing the knowledge base with testing scenarios as this knowledge base is one that the first rule is incorporated into, also as required by dependent claim 3. And it is the knowledge base of rules that is tested by the testing scenario. Applicants submit that dependent claim 3 is allowable over Borghesi et al. in view of Apte et al. for this reason also.

Turning now to claim 11, the Examiner takes the position:

As per claim 11, Borghesi and Apte disclose the newly added limitations of “with a computer system”, “in the computer networked system”, “with the computer networked system”, “and” and by “the computer networked system” (See Borghesi Col. 5, lines 51 – 67)²

Borghesi and Apte do not explicitly disclose that the computer-implemented having a warranty knowledge base

However, these features are known in the art, as evidenced by Aquila et al. In particular, Aquila et al. suggests that the method having a warranty knowledge base construction system. (See Aquila et al., Page 16, Paragraphs 0283 – 0291) [Final Official Action mailed March 2, 2006, Section 4(A).

Claim 11 is directed to a computer-implemented warranty knowledge base construction method. As discussed above with respect to claim 1, Borghesi et al. is directed to a system and method for managing insurance claim processing. As such, it deals with processing an insurance claim. It does not, however, deal with constructing the rules by which the claim is processed. Apte et al. is directed to data mining based underwriting profitability analysis. It similarly fails to disclose constructing the rules by which a claim is processed. Aquila et al. is directed to a system and method of administering, tracking and managing of claims processing. But, contrary to the Examiner's position, Aquila et al. does not disclose a knowledge base construction method that constructs rules. In Aquila et al., the rules are provided, such as by the insurance carriers responsible for paying claims. [See, e.g., Aquila et al., Par. 00129] And the sections of Aquila et al. cited by the Examiner, Pars. 0283 – 0291, do not address building rules, and in fact, do not

² These limitations were added not to overcome a prior art rejection but to address the Examiner's rejection under 35 U.S.C. § 101 in the Official Action mailed June 21, 2005 that these claims were directed to non-statutory subject matter because they failed the now rejected test of “not within the technological arts”. See, Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility, OG 22 November 2005, Annex III (A), citing Ex Parte Lundgren, 76 U.S.P.Q.2d 1385 (BPAI 2005).

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discuss rules at all. Rather, these sections discuss the transmission, storage or retrieval of claim data from an electronic claim file repository.

Moreover, applicants submit that these sections of Aquila et al. (Pars.00283 – 0291) are not available as prior art. Aquila et al., a published patent application, was filed April 3, 2001, almost one month after the March 7, 2001 filing date of the present application. Aquila et al. claims the benefit of a provisional patent application filed April 3, 2000 (USSN 60/194,128). Thus, it is only what is disclosed in this provisional patent application that is available as prior art under 35 U.S.C. § 102(e).

Applicants have attached a copy of USSN 60/194,128 (“128 Prov. App.”) in the Evidence Appendix. Applicants were unable to find in the ‘128 Prov. App. sections corresponding to Pars. 0283 -0291 of Aquila et al.

Claim 11 also requires receiving with a computer networked system a first rule related to vehicle repair claim processing. For reasons similar to those discussed above, applicants submit that none of Borghesi et al., Apte et al. or Aquila et al. disclose receiving with a computer networked system a first rule related to vehicle repair claim processing.

Claim 11 also requires storing syntax rules in the computer networked system for constructing repair claim-related rules, and determining with the computer networked system whether the first rule is in an acceptable syntax based upon the stored syntax rules. For reasons similar to those discussed above with respect to claim 1, applicants submit that neither Borghesi et al. or Apte et al. disclose these limitations. Applicants also submit that Aquila et al. fails to disclose these limitations. Applicants were unable to find in either Aquila et al. or USSN 60/194,128 any discussion of any syntactical checking of a received rule.

For these reasons, applicants submit that claim 11 is allowable over Borghesi et al., in view of Apte et al. and Aquila et al.

Claim 12 depends from claim 11 and is allowable for this reason. Claim 12 further requires

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Atty Dkt No.: 705445US1

determining with the computer networked system whether the first rule is consistent with respect to at least one of the repair-related expert rules that is stored in the knowledge base. For essentially the reasons discussed above with respect to claim 2, applicants submit that neither Borghesi et al. or Apte et al. disclose this limitation. Applicants also submit that neither Aquila et al. or the '128 Prov. App. disclose this limitation. As discussed above, Aquila et al. does not address constructing rules. It thus does not address checking a new rule for consistency with existing rules. Applicants submit that dependent claim 12 is allowable over Borghesi et al. in view of Apte et al. and Aquila et al. for this reason also.

Claim 13 depends indirectly from claim 11 and is allowable for this reason. Claim 13 further requires testing the knowledge base with testing scenarios. For essentially the reasons discussed above with respect to claim 3, applicants submit that neither Borghesi et al. or Apte et al. disclose this limitation. Applicants also submit that neither Aquila et al. or the '128 Prov. App. disclose this limitation. As discussed above, Aquila et al. does not address constructing rules. It thus does not address testing the knowledge base with testing scenarios. Applicants submit that dependent claim 13 is allowable over Borghesi et al. combined with Apte et al. and Aquila et al. for this reason also.

Claims 3 – 10 depend directly or indirectly from claim 1, and claims 14 – 20 depend directly or indirectly from claim 11, and are allowable for at least this reason.

3. Conclusion

In conclusion, for the reasons discussed above, Applicants submit that the rejections of claims 1 – 20 under 35 U.S.C. § 103(a) are in error. Applicants respectfully request reversal of these rejections.

VIII. CLAIMS APPENDIX

Application Serial No.: 09/800,697

Atty Dkt No.: 705445US1

A copy of each of the claims involved in this appeal, namely claims 1 – 20, is attached hereto as Claims Appendix.

IX. EVIDENCE APPENDIX

A copy of provisional application USSN 60/194,128 is attached hereto as Evidence Appendix.

X. RELATED PROCEEDINGS APPENDIX

None

Respectfully submitted,



Roland A. Fuller III
Reg. No. 31,160
Harness, Dickey & Pierce P.L.C.

Dated: July 25, 2006

RALPH E. SMITH, JR.
DAIMLERCHRYSLER INTELLECTUAL CAPITAL COMPANY, LLC
DAIMLERCHRYSLER TECHNOLOGY CENTER
800 CHRYSLER DRIVE, CIMS 483-02-19
AUBURN HILLS, MI 48326-2757
248-944-6519

Application Serial No.: 09/800,697

Atty Dkt No.: 705445US1

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CLAIMS APPENDIX CENTRAL FAX CENTER
(Appendix A) JUL 25 2006

1. A computer-implemented warranty knowledge base construction system, comprising:

a user interface for receiving a first rule related to vehicle repair claim processing;

a rules syntax data store that stores syntax rules for constructing repair claim-related rules;

a knowledge base generator module connected to the user interface and to the rules syntax data store for determining whether the first rule is in an acceptable syntax based upon the stored syntax rules;

wherein the first rule is used in a knowledge base system to process repair claims.

2. The system of claim 1 wherein a knowledge base stores a plurality of repair claim-related expert rules to evaluate a repair claim, said system further comprising:

an integrity rules module connected to the knowledge base generator module in order to determine whether the first rule is consistent with respect to at least one of the warranty-related expert rules that is stored in the knowledge base.

3. The system of claim 2 wherein the first rule is incorporated into the knowledge base, said system further comprising:

a testing module for testing the knowledge base with testing scenarios.

4. The system of claim 2 wherein the first rule is incorporated into the knowledge base, said system further comprising:

A - 1

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Atty Dkt No.: 705445US1

a testing module for performing regression testing of the knowledge base.

5. The system of claim 2 further comprising:

a reverse engineer module for generating a specification for the knowledge base.

6. The system of claim 5 wherein the specification for the knowledge base includes warranty methods and warranty business rules.

7. The system of claim 2 wherein the first rule contains a high level computer expression, said knowledge base generator evaluating the high level expression as to whether the high level expression of the first rule is in an acceptable syntax based upon the stored syntax rules.

8. The system of claim 7 wherein the knowledge base generator generates a lower level representation of the first rule if the first rule is in an acceptable syntax.

9. The system of claim 8 wherein the high level computer expression of the first rule is an English phrase, wherein the lower level representation of the first rule is at least one line of programming code.

10. The system of claim 9 wherein the programming code is C++ programming code.

11. A computer-implemented warranty knowledge base construction method, comprising the steps of:

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receiving with a computer networked system a first rule related to vehicle repair claim processing;

storing syntax rules in the computer networked system for constructing repair claim-related rules;

determining with the computer networked system whether the first rule is in an acceptable syntax based upon the stored syntax rules; and

wherein the first rule is used by the computer networked system in a knowledge base method to process repair claims.

12. The method of claim 11 including evaluating a repair claim with the computer networked system using a plurality of repair claim-related expert rules stored in a knowledge base of the computer networked system and

determining with the computer networked system whether the first rule is consistent with respect to at least one of the repair claim-related expert rules that is stored in the knowledge base.

13. The method of claim 12 including incorporating with the computer networked system the first rule into the knowledge base and

testing the knowledge base with testing scenarios.

14. The method of claim 12 including incorporating with the computer networked system the first rule into the knowledge base, and

performing regression testing of the knowledge base.

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15. The method of claim 12 further comprising the steps of:
using a reverse engineer module for generating a specification for the knowledge base.

16. The method of claim 15 wherein the specification for the knowledge base includes warranty methods and warranty business rules.

17. The method of claim 12 wherein the first rule contains a high level computer expression, said method further comprising the step of:
evaluating the high level expression as to whether the high level expression of the first rule is in an acceptable syntax based upon the stored syntax rules.

18. The method of claim 17 further comprising the step of:
generating a lower level representation of the first rule if the first rule is in an acceptable syntax.

19. The method of claim 18 wherein the high level computer expression of the first rule is an English phrase, wherein the lower level representation of the first rule is at least one line of programming code.

20. The method of claim 19 wherein the programming code is C++ programming code.

Application Serial No.: 09/800,697

Atty Dkt No.: 705445US1

EVIDENCE APPENDIX

(Appendix B)

Copy of USSN 60/194,128 attached

B

4-4-00

A/P ROU

JUL 25 2006
04/03/06
U.S. PTOPlease type a plus sign (+) inside this box → ☐PTO/SB/16 (2-98)
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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

INVENTOR(S)					
Given Name (first and middle (if any))		Family Name or Surname		Residence (City and either State or Foreign Country)	
ANTHONY		AQUILA		Santa Rosa, California	
<input type="checkbox"/> Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (250 characters max)					
A SYSTEM AND METHODS FOR ADMINISTERING, TRACKING AND MANAGING CLAIMS PROCESSING					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number		<input type="text"/>		Place Customer Number Bar Code Label here	
OR Type Customer Number here					
<input checked="" type="checkbox"/> Firm or Individual Name		BROWN & WOOD, LLP C/O RONIT GILLON			
Address		One World Trade Center			
Address					
City	New York	State	New York	ZIP	10048
Country	New York	Telephone	212-839-5300	Fax	212-839-5599
ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification Number of Pages		17		<input type="checkbox"/> Small Entity Statement	
<input checked="" type="checkbox"/> Drawing(s) Number of Sheets		5		<input type="checkbox"/> Other (specify)	
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)					
<input type="checkbox"/> A check or money order is enclosed to cover the filing fees				FILING FEE AMOUNT (\$)	
<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number				50-0955	
				\$ 150.00	
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input type="checkbox"/> No.					
<input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are:					

Respectfully submitted,

SIGNATURE

Ronit Gillon

TYPED or PRINTED NAME

(212) 839-5300

TELEPHONE

Date

0403 / 00

REGISTRATION NO.

39,202

(if appropriate)

Docket Number

DT-3423

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is used by the public to file (and by the PTO to process) a provisional application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the complete provisional application to the PTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C., 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Box Provisional Application, Assistant Commissioner for Patents, Washington, D.C., 20231.

1-cvts U.S. PTO

60/194128

04/03/06

BROWN & WOOD LLP

ONE WORLD TRADE CENTER
NEW YORK, NY 10048-0557

TELEPHONE: 212-839-5300
FACSIMILE: 212-639-5599

Box Provisional Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

April 3, 2000

Our Ref.: DT-3423

Sir:

Please file the enclosed Provisional Patent Application (PPA) papers listed below under 37 C.F.R. § 1.53(c), as listed in the attached Provisional Application For Patent Cover Sheet.

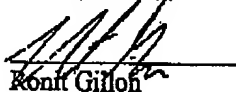
Applicant : Anthony Aquila
Title : A SYSTEM AND METHODS FOR
ADMINISTERING, TRACKING AND
MANAGING CLAIMS PROCESSING

comprising the following :

- (X) 1. The Commissioner is hereby authorized to charge the filing fee in the amount of \$150.00 and to charge any additional fee which may be required, or credit any overpayment, to Deposit Account No. 50-0955.
- (X) 2. Specification (17 pages)
- (X) 3. Drawing (5 sheets)
- (X) 4. Return Receipt Postcard

"EXPRESS MAIL" Label No. EL333024541US	DATE OF DEPOSIT: April 3, 2000
<p>I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Box Provisional Patent Application, Assistant Commissioner for Patents, Washington, D.C. 20231</p> <p>ARTHUR COPPOLA (typed or print name of person mailing or fee)</p> <p>Arthur Coppola (signature of person mailing paper or fee)</p>	

Respectfully submitted
for Applicant(s)


Ronit Gillofi
Reg. No. 39,202

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AFFILIATED WITH BROWN & WOOD, A MULTINATIONAL PARTNERSHIP WITH OFFICES IN LONDON AND HONG KONG

DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EMBODIMENTS

The present invention provides a new and improved system and methods of administering, tracking and managing claims processing. More particularly, the system and method processes, tracks and releases funds for claims made upon insurance policies and similar risk shifting mechanisms including but not limited to self insurance, indemnity provisions and surety and performance bonds. The overall system for practicing the methods is shown in the system architecture of FIG. 1. The elements depicted on FIG. 1 include the computer systems, network connections and other communication devices that constitute the preferred physical embodiments to implement the invention. It is understood, however, that the system is not limited to the mentioned devices and additional and alternative devices may be supported by the system.

As shown in FIG. 1, a user interacts with system 30 through input/output devices 1 ("I/O devices"). These I/O devices include but are not limited to personal computer 2, wireless device 5, embedded device 10 and telephone 15.

Personal computer 2 may be an IBM compatible computer, a Macintosh computer or any other system capable of running client software such as a Web Browser ("Web Browser"). Personal computer 2 preferably runs a Web Browser such as Netscape's Navigator or Microsoft's Internet Explorer to communicate information to and from system 30. Personal computer 2 is connected to a communication network 25, such as the Internet, using a fast connection, such as DSL, cable modem, wireless, modem, etc. Personal computer 2 includes an output device, such as a monitor or other display and a speaker or printer (e.g., printer device 3). Personal computer 2 also includes an input such as a keyboard or pointing device (e.g., mouse, track ball, pen device, microphone, joy stick, game pad, satellite dish, scanner or the like) or both to enable the user to input information.

Wireless device 5 may include but is not limited to a communication device that a user carries and uses to enter and obtain information pertinent to the process. The wireless infrastructure that connects the device with the communication network 25 uses existing wireless signal receiving systems 20 similar to the communication methods used by 3Com's Palm Pilot VII.

Embedded device 10 may include but is not limited to a communication device embedded in the insured object, such as a vehicle or a home, that is capable of detecting, recording and transmitting to system 30 the information on the casualty that initiates a claim. Embedded device 10 preferably communicates the casualty information through wireless signal receiving systems 20 using a wireless device. Embedded device 10 may also transmit the casualty information through other communication lines such as telephone 15.

Personal computer 2, wireless device 5 and embedded device 10 transmit requests and responses to system 30 through communication network 25 using standard protocols, such as XML, HTTP or the like. It is understood, however, that the system 30 is not limited to the mentioned standard protocols and alternative standard protocols may be supported by the system 30.

When telephone 15 is used as an interface to system 30, telephone 15 transmits signals to telephony server 41. Telephony server 41 includes the necessary software to recognize speech and convert it to a standard text format such as XML or the like that can be sent to Web server 45.

The messages sent and received by the I/O devices 1 are in standard protocols when they are received by load balancers 40 and web servers 45. The preferred standard protocols include but are not limited to HTTP and XML protocols that are capable of being encrypted by Secure Socket Layer ("SSL"), Virtual Private Network ("VPN") protocol or similar encryption systems.

Preferably, the components in system 30 offer the highest performance, scalability and reliability. To provide these characteristics, the preferred platform could be, but is not limited to, Sun Microsystems hardware running the Solaris operating system.

Standard encryption mechanisms are used to ensure the confidentiality of data. When confidential data is transported between I/O devices 1 and system 30 or between external partner systems 62 and system 30, encryption systems (i.e., SSL or VPN or the like) may be used to protect the data.

Firewalls 35, 60, 69, 79, 88 and 93 ("firewalls") are specialized hardware and software components that filter requests traveling in and out of systems 30, 65, 75, 85 and 90 respectively. Preferably, the firewalls are manufactured by Cisco Systems or the like.

Firewall 35 is configured to accept only certain user request types preventing undesired requests from being forwarded from communication network 25 to system 30.

Web servers 45, 66, 76 and 89 include but are not limited to servers running a Web server application. Preferably, such servers are provided by Netscape Enterprise, Apache or similar software.

Firewall 35 sends requests to load balancer 40, which distributes such requests to one of the Web servers 45 in the Web Server farm. Web server 45 then forwards the request to application server 50 where a software application performs the appropriate business logic to satisfy the request. As part of the required business logic, the application accesses data stored in database server 55.

Database server 55 runs a relational database management system (RDBMS), such as Oracle 8i or the like. The RDBMS software running in server 55 manipulates the data and sends the appropriate information to application server 50.

Application server 50 may be, but is not limited to, a Java based server providing scalability and reliability to the application. The application runs on top of application server software, such as BEA System's WebLogic or the like.

The information required to complete the response to the request may not only require data from database server 55, but also data from one of the external partner systems 62. In this

case, application server 50 sends a request to one of the external partner systems 62 via a secure communications medium 61, such as, privately leased lines or the like. These external partner systems 62 include insurance carrier's system 65, supplier system 75, police report system 85, trust/bank system 90 and any other external systems necessary to implement the present invention. The preferred format for the sent request is standard XML format, although other formats may be supported by system 30.

A Computer running the adapter software running in systems 67, 77, 86 or 91 translates the XML request to the format required by the insurer's system, such as legacy systems 68, 78, 87 or 92. Once legacy systems 68, 78, 87 or 92, respectively retrieve or update the data inside their data stores, information is sent back to adapter 67, 77, 86 or 91, which translates the message to XML and sends it back to application server 50.

Legacy systems 68, 78, 87 or 92 include but are not limited to existing systems that the external partners use to store and process the data they use to perform their business. It is understood that insurer systems other than legacy systems may be used.

Application server 50 builds a response preferably in HTML or XML formats and sends it back to the I/O devices 1 that initiated the request. For example, in the case of a personal computer 2, the message transmitted to a Web Browser is an HTML message using the HTML protocol. In the case of the embedded device 10 and wireless device 5, the message is in XML format over HTTP or HTTPS. In the case of telephone 15, the message is an XML message ready to be converted into audible speech by telephony server 41.

FIG. 2 depicts the logical components that comprise the application software used to implement the present invention. The application is designed using an object oriented and multi-tier approach to provide flexibility and ease of integration with external partner systems 62 and also to allow future modifications to the system 30. It is understood, however, that the system 30 is not limited to the mentioned logical components and additional and alternative logical components may be supported by the system 30.

As shown in FIG. 2, the system 30 uses various user interfaces 150, including client software 151, voice based interface 152 and wireless interface 153. This layer corresponds to the I/O devices 1 in FIG. 1.

The client software 151 runs in a client machine such as personal computer 2 and has all the display and communication logic necessary to send and receive messages to and from the system 30 via communications network 25. The preferred client software 151 is a Web Browser.

The voice based interface 152 enables a user using telephone 15 to communicate with system 30.

The wireless interface 153 enables a user using a wireless device 5 to communicate with system 30. The wireless interface 153 may also include an embedded device 10.

The application layer 165 may be hosted in application servers 50. All communications between the application layer 165 and the external partner systems 62 are accomplished using enterprise application interface 170 ("EAI") software. The EAI 170 software manages message

delivery and transaction integrity. Such EAI 170 software may be purchased from Active Software or the like. The data to be communicated is converted into a standard format such as XML or the like by EAI 170. Adapter software 171 (residing in adapter machines 67, 77, 86 and 91 in FIG. 1) can convert the standard format to the format required by external partner system 62.

Data layer 180 provides the ability to store, update and access data in an efficient and organized manner. Preferably, the functionality of data layer 180 is provided by a RDBMS such as Oracle 8i or the like. The data in data layer 180 includes, but is not limited, to the following categories:

Customer 180a comprising customer data including name, address, policy information, transactions, preferences and the like;

Product 180b comprising product data including catalog information, price, description, technical information and the like;

Claims/Estimates 180c comprising claim data including estimates, photos, status, loss reports and the like;

Service providers 180d comprising service provider data including name, address, certifications, business partners and the like;

Financial 180e storing a record of all financial transactions managed by system 30;

CSI 180f comprising the customer satisfaction index ("CSI") data generated by consumers' questions and answers provided in response to a customer satisfaction survey, as well as other CSI information on the service provider, supplier and other business providing service for a given industry;

Police report 180g comprising police report data including the description of the casualty, name of the claimant, name of the officer and the like; and

Industry directory 180h comprising industry data including data on the businesses participating in a given industry with special emphasis being placed on the service providers' information.

Application layer 165 comprises several modules and engines including application software programs for performing various functions within application server 50, including but not limited to user authentication module 165o, audit module 165a, translation engine 165b, financial module 165d, claims module 165h, business rules module 165c, escrow engine 165e, workflow engine 165i, CSI engine 165g, e-commerce module 165f, industry directory module 165j, auction module 165k, voice recognition module 165l, reporting module 165m and data mining module 165n.

The user authentication module 165o provides security control to the system 30. User authentication module 165o controls what part of the application the user is authorized to access. User authentication module 165o requires the user to provide a valid user Id and password combination. The user authentication information is, preferably, stored on data layer 180, but it can also be stored on the external partner systems 62, if required by any external partner.

The audit module 165a provides detailed fraud detection algorithms that assess the estimate submitted from the service provider using I/O devices 1 to system 30. The audit module 165a component is also responsible for delivering the audited estimate to the insurance carrier's system 65. The insurance carrier that uses the system 65, to which the audit module 165a sends an estimate, provides the parameters for the algorithm. These insurance carrier provided parameters are stored in data layer 180d. The audit module 165a also checks for duplicate claims sent to multiple carriers and detects likely fraud candidates based on actuarial analysis of claims data. The audit module 165a also flags estimates for potential fraud review by tying system 30 to external partner systems 62, such as credit card fraud detection systems.

The translation engine 165b, preferably, receives an estimate in a proprietary format from personal computer 2 using a Web Browser 151, or the like. Translation engine 165 then converts the received format into a universal format and sends it to the audit module 165a. If the estimating software does not provide a facility to save an estimate to a file, client software 151 in personal computer 2 is used to extract an estimate from the estimating software. Client software 151 transmits the estimate to the application layer 165 using the same mechanisms described in FIG. 1 for the communication of information from personal computer 2 to system 30.

The financial module 165d manages the payments based on input from the escrow engine 165e and the workflow engine 165i and records and controls the transactions that have financial implications. In other words, financial module 165d tracks the revenue generated and costs incurred by the transactions flowing throughout the system 30.

Claims module 165h manages all claim-related services and data. Claims module 165h builds a comprehensive claims record including repair facility estimates and photos, parts and materials, vendor data, contracted labor data, trust account information, approvals and payment history, post repair reports and photos, consumer satisfaction reports and warranty data. This data is stored in the Claims/Estimates 180c database.

Business rules module 165c uses parameters entered by an insurance carrier through its client software 151 interface to control the application layer 165 for system 30 communication with the consumer. For example, an insurance carrier may want to display certain policy information to a consumer that other carriers may choose not to display.

Escrow engine 165e manages the authorization and communication with the trust account 90 to make payments based on initial approval of the service provider's estimate and the attainment of milestones throughout the workflow process as indicated by the workflow engine 165i. This escrow engine 165e also flags and escalates exceptions in the process.

Workflow engine 165i provides an interface for the service provider (preferably a wireless interface 153) to enter ongoing service status and post the service status to be viewed by

trading partners and consumers. Workflow engine 165i also communicates with escrow engine 165e to facilitate the timely transfer of funds based on attainment of milestones in the process. The service provider predefines the milestones to be considered using the client software 151 at the service provider's personal computer 2.

CSI engine 165g uses both structured data (questions with predefined possible answers including multiple choice answers) and unstructured data (questions to be answered using free text). Such data is gathered by the system 30 from the consumer to generate a Customer Satisfaction Index ("CSI") 180 for the service providers. When the claim services are completed, the consumer completes the consumer satisfaction survey via a client software 151 interface or a voice based interface 152.

E-commerce module 165f provides the facilities necessary to receive and send electronic orders and payments between service providers and suppliers.

Industry directory module 165j provides a consumer with an interface to select service providers. Module 165j includes extensive information on the service providers, such as maps, services, virtual facility tour, CSI index and information specific to an insurance carrier, such as preferred service provider status.

Auction module 165k provides an auction area for service providers and suppliers to exchange parts, supplies and materials at market value.

Voice recognition module 165l translates voice to data format to be provided to other modules and engines of the application layer 165. Voice recognition module 165l also translates data provided by other modules and engines of the application layer 165 into voice to provide a user at telephone 15 with appropriate feedback through the voice based interface 152.

Reporting module 165m summarizes and formats data for various users to view through a client software 151 interface. The reporting module 165m includes software provided by Crystal reports and the like to facilitate the creation of the reports.

Data mining module 165n provides data analysis tools such as Brio and the like. Information gathered in system 30 is used to detect trends for marketing and to detect fraud. For example, by analyzing the information on the service providers one could identify certain workflow patterns that indicate the need for a particular product or solution.

Preferably, system 30 is replicated in different locations and data is synchronized between the different locations to provide the highest level of reliability.

The methods for practicing the present invention are disclosed in FIGS. 3, 4 and 5. FIG. 3 illustrates a general insurance claim processing method in accordance with the present invention. A consumer using any of the I/O devices 1 communicates with the system 30 via the global communication network 25. The consumer may use any of the I/O devices 1 depicted in FIG. 1. Preferably, the consumer communicates with the system 30 using a client software 151 on the consumer's personal computer 2. It is this embodiment that is used to describe the method of FIG. 3. It is, however, understood that the method can be practiced using systems other than system 30.

At step 300, a consumer (insured or claimant) initiates the claims process using an I/O device 1. Preferably, the process is initiated via the insurance carrier's system 65 but it could also be initiated directly with the system 30.

At step 303, the consumer commences the first notice of loss ("FNOL") process by selecting the FNOL menu option or link from the insurance carrier's system 65.

At step 306, the insurance carrier's system 65 retrieves the consumer's profile information including policy and coverage data from the carrier's legacy system 68 and forwards that data via a secure communication medium 61 to the system 30. This enables the system 30 to pre-populate the Claims/Estimates 180c data fields from the database server 55 on the FNOL screen relating to insured vehicles, drivers, and coverage which facilitates processing the claim with accurate and relevant data.

At step 309, the insurance carrier's system 65 forwards the consumer's I/O device 1 via the communication network 25 to the claims module 165h of the system 30, which is co-branded with the insurance carrier's identity. The insurance carrier's system 65 data fields that were transferred in step 306 are mapped at the system 30's application layer 165 to database server 55's Claims/Estimates 180c data fields and forwarded to the consumer's I/O device 1 for the consumer's review.

At step 312, the consumer completes FNOL on his or her I/O device 1 by answering a series of claim related questions retrieved by the Claims/Estimates module 180c from database server 55 and submitting the replies to the questions via the communication network 25 to the Claims/Estimates 180c database. The claims module 165h branches questions based on business rules module 165c that require additional questions to be completed. For example, the automobile claim will have questions relating to bodily injury. If the consumer answers in the affirmative, there will be additional questions to provide detail about the injured parties and the sustained injuries.

At step 315, in the preferred FNOL process, the consumer selects appropriate service providers using their I/O device 1 (e.g., automobile claim selects repair facility, worker's compensation claim selects medical service provider, etc.). As part of the FNOL screen, the consumer is offered the option of choosing the link or icon to select a service provider. This option transfers the consumer's client software 151 view to the industry directory 165j listing of industry related service providers. The FNOL, however, can be submitted without service provider selections in the event that the consumer has already made service provider choices outside the FNOL process or does not wish to make a selection at that point.

At step 316, the completion of steps 312 and 315 result in the system 30 retrieving the consumer's claim data 180c and transmitting it via the communication medium 61 to the insurance carrier's system 65.

Similarly, at step 318, the completion of steps 312 and 315 result in the system 30 retrieving the consumer's claim data from Claims/Estimate 180c database and transmitting it via the global communication network 25 to the service provider's personal computer 2 (other service providers that were selected are signaled in the same manner). The data includes any

available detail that facilitates the provider in performing their task (e.g., for an automobile claim the repair facility receives vehicle and damage information, a worker's compensation claim includes patient and injury detail).

At step 320, the consumer and service provider communicate via their respective I/O devices 1 to schedule an appraisal appointment. Preferably, the consumer uses his or her I/O device 1 to access the scheduling feature of the claims module 165h at the application layer 165. Alternatively, the consumer may elect to contact the service provider directly via telephone 15. The service provider then uses its I/O device 1 to review and update its schedule via the claims module 165h.

The appointment occurs at the appropriate location. The service provider determines the extent of service required to satisfy the claim. An estimate for the services and associated costs is generated using third party estimation software on the service provider's personal computer 2 (e.g., for an automobile claim the repair facility will use an estimation tool such as those provided by ADP, CCC, and Mitchell), or other tools available to the service provider.

At step 321, the data is submitted online to the application server 50 of system 30 using the service provider's personal computer 2. Preferably, the estimate is saved to a claims datafile on the service provider's I/O device 1 and the same I/O device 1 forwards the estimate to the system 30 via communication network 25 using client software 151.

At step 323, once the service provider estimate is on the application server 50, it is converted from the format used by the third party estimation software, or other tool, into a universal format by the system 30's translation engine 165b.

At step 324, the translated estimate is passed to the audit module 165a, which applies insurance carrier specific parameters and comprehensive trending analysis to flag any inconsistencies and prevent irregular practices by the service provider (e.g., for an automobile claim this includes but is not limited to checks against local market labor rates and charges, evaluation of the estimate relative to the industry's best business practices, decoding of VIN to ensure selection of accurate parts, generation of reports detailing savings opportunities and summarizing line by line cost variances). The translated and audited estimate is stored on the Claims/Estimates 180c.

At step 327, the claim data is transferred in its universal format to the carrier's adapter 67, via the communication medium 61, where it is converted from the universal format to the carrier's preferred format and stored in the carrier's legacy system 68.

At step 330, if the service provider's estimate data was approved by step 327, the escrow engine 165e authorizes the trust account stored on the Trust/Bank system 90 to make payments against the insurer's chosen financial instrument (e.g., line of credit). The escrow engine 165e signals the financial module 165d of the system 30 to manage payments. The business rules module 165c generates an e-mail notification to the service provider's personal computer 2 indicating approval of the estimate. The e-mail will contain a hyperlink back to the system 30 so that the service provider's personal computer 2 can view the Claims/Estimates 180c data.

If the estimate was not approved by step 327, the carrier's legacy system 68 signals the insurance carrier's system 65 or sends an e-mail to an adjuster at the carrier company to review the data.

At step 333, the adjuster retrieves the claim information from the carrier's legacy system 68 and views the claim information using his or her I/O device 1. The adjuster may modify the claim or estimate data and determines whether the estimate is approved or not. The adjuster's ruling and any modifications to the claim data are saved to the carrier's legacy system 68 and transmitted from the insurance carrier's system 65 to system 30's database server 55 via the secure communication medium 61. The transaction is the reverse of step 327, in particular, the claim data is converted into its universal format using the carrier's adapter 67 and transmitted over the communication medium 61 to the system application server 50 and saved to the database server 55.

At step 336, the receipt of the revised claim data by application server 50 initiates business rules module 165c, which generates an e-mail notification to the service provider's personal computer 2 indicating approval or rejection of the estimate. The e-mail notification contains a hyperlink back to the system 30 so that the service provider's personal computer 2 can view the updated Claims/Estimates 180c data.

At step 339, once the claim has been approved as indicated in step 336, the escrow engine 165e notifies the financial module 165d that payments are authorized.

At step 342 the service provider begins to fulfill the claim-related services. The system 30 ties the payment path with the delivery of these services, as described in step 348 which follows. For each financial transaction, the financial module 165d formats and stores invoice and payment documentation in the financial 180e database in conformity with carrier requirements, as specified by the business rules module 165c.

At step 351, the service provider procures any required materials, supplies, and/or services, preferably, online using their I/O device 1 (e.g., in an automobile claim this includes the repairing and/or ordering of parts). The service provider uses their client software 151 to access the system 30's e-commerce module 165f marketplace or auction module 165k, both residing on the application server 50. The service provider can order or bid for materials and services, respectively.

At step 345, the system 30 financial module 165d determines if the service provider is a trusted trading partner by using the service provider specific data from the system 30's service provider 180d database.

At step 348, when the service provider is trusted, the financial instrument (such as a trust account or credit instrument) on the Trust/Bank system 90 is activated to pay portions of the total claim on a continuum that is stipulated by the escrow engine 165e to match the progress of the service. When the service provider is not trusted, the trust account tracks progress of the repair for storing status tracking data as part of the claim object of Claims/Estimates 180c database. The service provider using its I/O device 1 provides service updates to system 30. Preferably, the service provider uses client software 151 to access only its claim-related records from the

database server 55. Alternatively, client software 151 extracts workflow data from a third party workflow application on the service provider's personal computer 2.

At step 354, the service provider accepts and validates the completion of the materials and services transaction when all parts, materials, supplies are received and/or sub-services are completed. The validation is provided by the service provider's personal computer 2 to the escrow engine 165e via its client software 151.

At step 357, when the transaction is validated, the escrow engine 165e signals the financial module 165d to issue payments of Trust/Bank funds to the vendor/sub-service provider. The financial record stored on the financial database 180e and the account on the Trust/Bank system 90 are updated to reflect this payment. The issuance of payment is based on payment terms for the specific vendor, as indicated in the financial module 165d.

At step 360, the database record for the service provider is retrieved from service provider 180d database to determine if the service provider is trusted.

At step 363, if the service provider is trusted, the escrow engine 165e signals the financial module 165d to pay the service provider its profit margin on the purchase/sub-service concurrent with the vendor/sub-service payment. The payment is made from the account on the Trust/Bank system 90.

At step 366, the service provider completes the required services. Any completed purchase/sub-service has been noted in the claim file. Status updates and any additional details are provided by the service provider during service using their I/O device 1 and stored as part of the Claims/Estimates 180c data on the data base server 55.

At step 369, when the claim services are completed, the consumer completes the consumer satisfaction survey. Preferably, the consumer uses his or her I/O Device 1 to review the customer satisfaction survey questions stored in CSI 180f that are retrieved by the CSI engine 165g. Alternatively, the consumer completes a paper version of the survey and sends that to a data entry group that uses I/O devices 1 to forward the responses to the CSI engine 165g for storage in the CSI 180f database on the database server 55.

The results of the consumer satisfaction survey are retrieved from the data server 55 and compiled by the CSI engine 165g. The CSI engine 165g utilizes an algorithm to generate a composite index for the survey and updates the overall index for that service provider in an entry to industry directory 180h incorporating the new result. The resulting overall CSI index is displayed by the industry directory module 165j the next time the service provider's data in industry directory 180h is accessed from the system 30's data layer 180.

At step 372, once the consumer satisfaction survey is completed, the escrow engine 165e authorizes the financial module 165d to release the remaining balance of the claim amount to the service provider from the account on the Trust/Bank system 90.

If the service provider is trusted, any remaining amount is paid.

If, however, the service provider is not trusted, the total claim (less cost of purchases/sub-services) is paid from the account on the Trust/Bank system 90.

FIG. 4 illustrates an automobile insurance claim method in accordance with the present invention. The consumer may use any of the I/O devices 1 depicted in FIG. 1. Preferably, the consumer communicates with the system 30 using a client software 151 on the consumer's personal computer 2. It is this embodiment that is used to describe the method of FIG. 4. It is, however, understood that the method can be practiced using systems other than system 30.

At step 400, a consumer (insured or claimant) initiates the automobile claims process using an I/O device 1. Preferably, the process is initiated via the insurance carrier's system 65 but it could also be initiated directly with the system 30.

At step 401, the consumer commences the FNOL process by selecting the FNOL menu option or link from the insurance carrier's system 65.

At step 403, the insurance carrier's system 65 retrieves the consumer's profile information including policy and coverage data from the carrier's legacy system 68 and forwards that data via a secure communication medium 61 to the system 30. This enables the system 30 to pre-populate Claims/Estimates 180c data fields from the database server 55 on the FNOL screen relating to insured vehicles, drivers, and coverage which facilitates processing the claim with accurate and relevant data.

At step 406, the insurance carrier's system 65 forwards the consumer's I/O device 1 via the communication network 25 to the claims module 165h of the system 30, which is co-branded with the insurance carrier's identity. The insurance carrier's system 65 data fields that were transferred in step 306 are mapped at the system 30's application layer 165 to database server 55's Claims/Estimates 180c data fields and forwarded to the consumer's I/O device 1 for the consumer's review.

At step 409, the consumer completes FNOL on his or her I/O device 1 by answering a series of automobile claim related questions retrieved by the claims module 180c from database server 55 and submitting the replies to the questions via the communication network 25 to the Claims/Estimates 180c database. The claims module 165h branches questions based on business rules module 165c that require additional questions to be completed. For example, the automobile claim will have questions relating to bodily injury. If the consumer answers in the affirmative, there will be additional questions to provide detail about the injured parties and the sustained injuries.

At step 412, in the preferred FNOL process, the consumer selects appropriate service providers (e.g., repair facilities, rental agencies, towing services) using their I/O device 1. Preferably, the repair facility also includes but is not limited to rental and towing services. As part of the FNOL screen, the consumer is offered the option of choosing the link or icon to select a service provider. This option transfers the consumer's client software 151 view to the industry directory 165j listing of automobile related service providers. The FNOL, however, can be submitted without service provider selections in the event that the consumer has already made

repair facility choices outside the FNOL process or does not wish to make a selection at that point.

At step 415, the completion of steps 409 and 412 triggers the claims module 165h of the system 30 to initiate the process of ordering a police report. Business rules module 165c determines from the automobile claim data in Claims/Estimates 180c database whether the report exists in the police report 180g database. If the report does not exist in the police report 180g database, the business rules module 165c determines to which police report system 85 the request should be transmitted. Preferably, the request is transmitted via the secured communication medium 61. Alternatively, the request may be transmitted through an I/O device 1, as described in FIG. 1, via the communications network 25.

At step 418, the system 30 retrieves the consumer's Claims/Estimates 180c data and transmits it via the communication medium 61 to the insurance carrier's system 65.

The system 30 retrieves the consumer's claim data from Claims/Estimates 180c and transmits it via the communication network 25 to the repair facility's personal computer 2 (other service providers that were selected such as rental agencies, or towing service providers are signaled in the same manner). The data includes any available detail that facilitates the service provider in performing its task. For example, the repair facility receives vehicle and damage information and a rental agency receives scheduling information.

At step 420, the consumer and repair facility communicate via their respective I/O devices 1 to schedule an appraisal appointment. Preferably, the consumer uses his or her I/O device 1 to access the scheduling feature of the claims module 165h at the application layer 165. Alternatively, the consumer may elect to contact the repair facility directly via telephone 15. The repair facility then uses its I/O device 1 to review and update its schedule via the claims module 165h.

The appointment occurs at the repair facility's location. If towing or rental services were selected in step 412 they would also be coordinated as part of this scheduling step.

The repair facility determines the extent of service required to satisfy the claim. An estimate for the services and associated costs is generated using third party estimation software on the repair facility's personal computer 2 such as those provided by ADP, CCC, and Mitchell.

At step 421, the estimate data is submitted online to the application server 50 of system 30 using the repair facility's personal computer 2. Preferably, the estimate is saved to a claims datafile on the repair facility's I/O device 1 and the same I/O device 1 forwards the estimate to the system 30 via communication network 25 using client software 151.

At step 422, once the repair facility estimate is on the application server 50, it is converted from the format used by the third party estimation software, or other tool, into a universal format by the system 30's translation engine 165b.

At step 424, the translated estimate is passed to the audit module 165a, which applies insurance carrier specific parameters and comprehensive trending analysis to flag any inconsistencies and prevent irregular practices by the repair facility. This includes but is not

limited to checks against local market labor rates and charges, evaluation of the estimate relative to the industry's best business practices, decoding of VIN to ensure selection of accurate parts, generation of reports detailing savings opportunities and summarizing line by line cost variances. The translated and audited estimate is stored on the Claims/Estimates 180c.

At step 427, before the Claims/Estimates 180c data can be sent to the insurance carrier's system 65 the business rules 165c checks the police report 180g data to determine if the report specific to this claim is available.

At step 430, if the police report is not available the business rules module 165c initiates the police report acquisition process, as detailed in FIG. 5.

At step 431, if the report is available in the police report 180g database, then it is retrieved by the claims module 165h and attached to the Claims/Estimates 180c data.

At step 433, the claim data including the police report data in Claims/Estimates 180c is transferred in its universal format to the carrier's adapter 67, via the communication medium 61, where it is converted from the universal format to the carrier's preferred format and stored in the carrier's legacy system 68.

At step 436, if the repair facility's estimate data was approved in accordance with business rules module 165c, the escrow engine 165e authorizes the trust account stored on the Trust/Bank system 90 to make payments against the insurer's chosen financial instrument (e.g., line of credit). The escrow engine 165e signals the financial module 165d of the system 30 to manage payments. The business rules module 165c generates an e-mail notification to the repair facility personal computer 2 indicating approval of the estimate. The e-mail will contain a hyperlink back to the system 30 so that the repair facility personal computer 2 can view the Claims/Estimates 180c data.

If the estimate was not approved by step 436, the system 30 signals the insurance carrier's system 65 or sends an e-mail to an adjuster at the carrier company to review the data.

At step 439, the adjuster retrieves the claim information from the carrier's legacy system 68 and views the claim information using their I/O device 1. The adjuster may modify the claim or estimate data and determines if the estimate is approved or not. The adjuster's ruling and any modifications to the claim data are saved to the carrier's legacy system 68 and transmitted from the insurance carrier system 65 to system 30's database server 55 via the secure communication medium 61. The transaction is the reverse of step 433, in particular, the claim data is converted into its universal format using the carrier's adapter 67 and transmitted over the communication medium 61 to the system application server 50 and saved to the database server 55.

At step 442, the receipt of the revised claim data by application server 50 initiates business rules module 165c, which generates an e-mail notification to the repair facility personal computer 2 indicating approval or rejection of the estimate. The e-mail notification contains a hyperlink back to the system 30 so that the repair facility personal computer 2 can view the updated Claims/Estimates 180c data.

At step 445, once the claim has been approved as indicated in step 442, the escrow engine 165e notifies the financial module 165d that payments are authorized.

At step 448, the repair facility begins to fulfill the claim-related services. The system 30 ties the payment path with the delivery of these services, as described in step 454 which follows. For each financial transaction, the financial module 165d formats and stores invoice and payment documentation in the financial 180e database in conformity with carrier requirements, as specified by the business rules module 165c.

At step 451, the system 30 financial module 165d determines if the repair facility is a trusted trading partner by using the repair facility specific data from the system 30's service provider 180d database.

At step 454, where the repair facility is trusted, the trust account on the Trust/Bank system 90 is activated to pay portions of the total claim on a continuum stipulated by the escrow engine 165e that matches progress of the service. If the repair facility is not trusted, the trust account tracks progress of the repair for status tracking that will be stored as part of the claim object 180c. Service updates are provided by the repair facility using their I/O device 1. Preferably, the repair facility uses client software 151 to access only its claim-related records from the database server 55. Alternatively, client software 151 extracts workflow data from a third party workflow application on the repair facility's personal computer 2.

At step 457, preferably, the repair facility procures any required, parts, materials, supplies, and/or services online using its I/O device 1. The repair facility uses its client software 151 to access the system 30's e-commerce module 165f marketplace or auction module 165k on application servers 50. The repair facility can order or bid for materials and services, respectively.

At step 460, the repair facility accepts and validates the completion transaction when all parts, materials, supplies are received. This validation is provided by the repair facility's personal computer 2 to the escrow engine 165e via their client software 151.

At step 463, when the transaction is validated, the escrow engine 165e signals the financial module 165d to issue payments to the vendor with trust funds. The account on the Trust/Bank system 90 is updated to reflect this payment. This is performed based on payment terms for that vendor in the financial 180e database.

At step 466, preferably, the repair facility requests for sublet services are implemented online via the repair facility's I/O device 1.

At step 469, the repair facility accepts and validates the completion of the transaction when all sub-services are completed. This validation is provided by the repair facility's personal computer 2 to the escrow engine 165e via its client software 151.

At step 472, when the transaction is validated, the escrow engine 165e signals the financial module 165d to issue payments to the sublet service provider with Trust/Bank funds. The financial record stored on the financial database 180e and the account on the Trust/Bank

system 90 are updated to reflect this payment. The issuance of payment is based on payment terms for that service provider in the financial module 165d.

At step 475, the database record for the repair facility 180d is retrieved to determine if the repair facility is trusted. For example, insurance carriers will have a set of repair facilities that are part of their direct repair program. The service provider 180d database stores this information on the database server 55 to help determine the level of trust associated with a given repair facility.

At step 478, if the repair facility is trusted, the escrow engine 165e signals the financial module 165d to pay the repair facility its profit margin on the purchase/sub-service concurrent with the vendor/sub-service payment. The payment is made from the account on the Trust/Bank system 90.

At step 481, the repair facility completes the required services. Any other services such as car rental are completed at this time. All completed purchase/sub-service are noted in the claim file stored in the Claims/Estimates 180c database. Status updates and any additional details are provided by the repair facility during service using their I/O device 1 and stored as part of the Claims/Estimates 180c data on the database server 55.

At step 484, when the claim services are completed, the consumer completes the consumer satisfaction survey. Preferably, the consumer uses his or her I/O Device 1 to review the customer satisfaction survey questions stored in CSI 180f that are retrieved by the CSI engine 165g. Alternatively, the consumer completes a paper version of the survey and sends that to a data entry group that uses I/O devices 1 to forward the responses to the CSI engine 165g for storage in the CSI 180f database on the database server 55.

The results of the consumer satisfaction survey are retrieved from the database server 55 and compiled by the CSI engine 165g where an algorithm generates a composite index for the survey and updates the overall index for that repair facility entry in industry directory 180h database to incorporate the new result. The resulting overall CSI index will be displayed by the industry directory module 165j next time the repair facility's data 180h is accessed from system 30's data layer 180.

At step 487, once the consumer satisfaction survey is completed, the escrow engine 165e authorizes the financial module 165d to release the remaining balance of the claim amount to the repair facility from the account on the Trust/Bank system 90. If the repair facility is trusted, any remaining amount is paid.

If the repair facility is not trusted, the total claim (less cost of purchases/sub-services) is paid from the account on the Trust/Bank system 90.

FIG. 5 illustrates the police report acquisition method, in accordance with the present invention, referred to in FIG. 4. At step 500, a member of a police department generates a police report. Preferably, the member of the police department creates a police report at the accident scene using an I/O device 1 such as a wireless device 5, embedded device 10 or telephone 15. The police report comprises data relevant to the accident including details regarding the vehicles and drivers involved in the accident, visible damage or injuries, details of the accident scene,

details of the events leading up to and including accident and any other relevant data (e.g., witnesses, etc.). This police report is subsequently stored on the police department report system 85 (e.g., legacy system 87).

At step 505, the police report is transmitted from the legacy system 87 to system 30's police report 180g database stored on database server 55. Preferably, a member of the police department transmits the completed police report from the police department's legacy system 87 to the system 30 through adapter 86 via a secure communications medium 61.

At step 510, the police report is received by system 30 and stored in the police report 180g database.

At step 515, the police report is screened by the claims module 165b for attachment to existing insurance Claims/Estimates 180c datafile. Preferably, the newly saved police report is screened to determine if the report correlates to an insurance claim for a preexisting insurance Claims/Estimates 180c datafile. The screening process compares such relevant information as the Vehicle Identification Number (VIN), date, time and location of accident from the police report to the corresponding data in the existing insurance Claims/Estimates 180c datafile. If a screened police report correlates to an existing insurance Claims/Estimates 180c datafile the police report data is attached to the corresponding insurance Claims/Estimates 180c datafile.

At step 517, if the screened police report does not correlate to an existing insurance Claims/Estimates 180c datafile, there is no direct action. However, the police report is now available in the event an insurance Claims/Estimates 180c datafile is created subsequent to the system 30 receiving the police report.

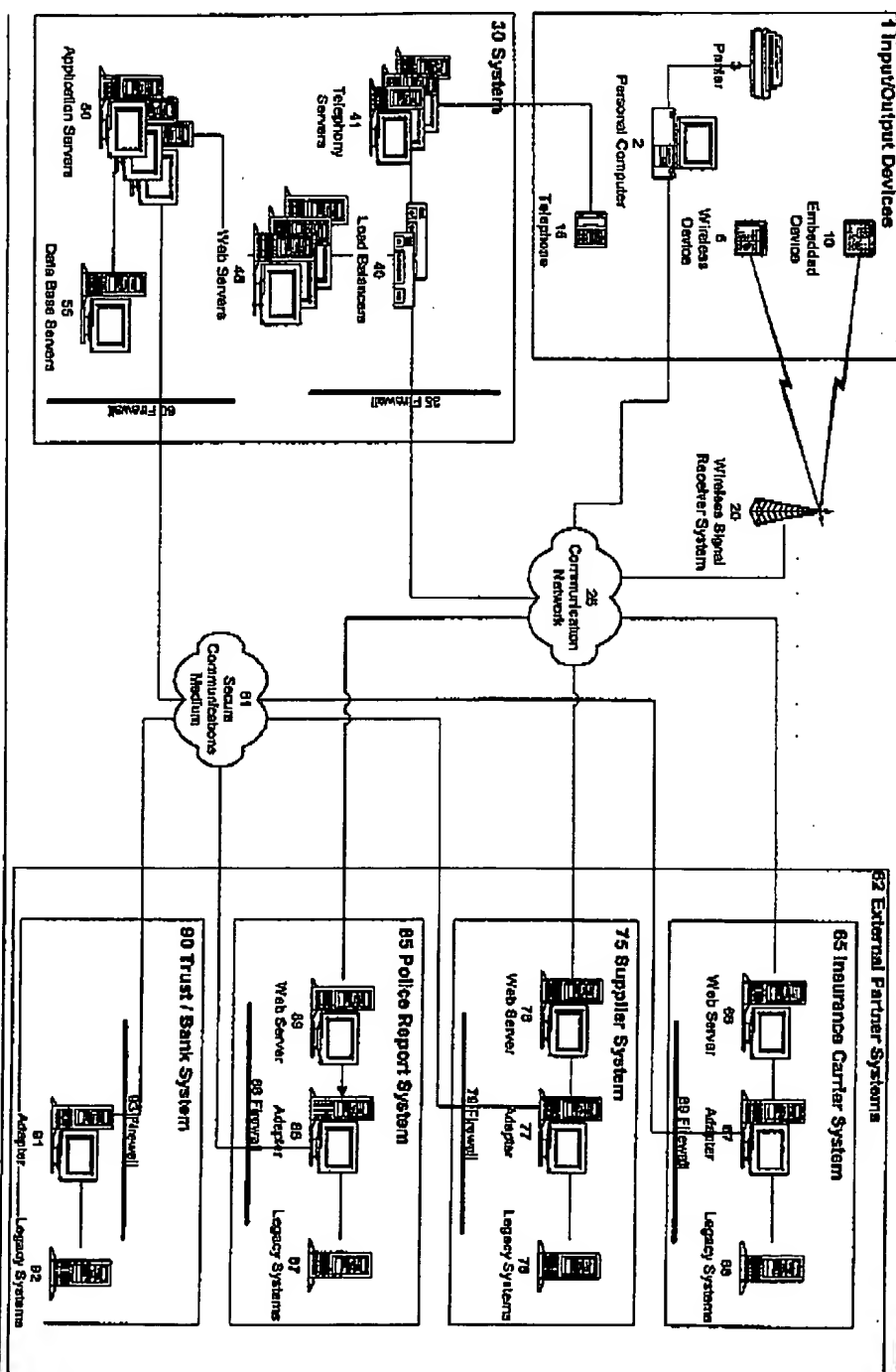
At step 530, the system 30 generates a request for a police report for every insurance Claims/Estimates 180c datafile that is created. Preferably, while generating an insurance Claims/Estimates 180c datafile for storage in that datafile, the system 30 executes a stored procedure to search and screen the police reports 180g database to determine if a police report correlates to the newly created insurance Claims/Estimates 180c datafile. This inquiry compares certain information contained in the insurance Claims/Estimates 180c datafile, such as VIN, date, time and location of accident to data within existing police reports 180g datafile.

At step 535, the system 30 repeatedly generates a request for a police report for every unsatisfied insurance Claims/Estimates 180c datafile without a police report attached thereto. Preferably, a predetermined sequence of computer steps (procedure) is stored on database server 55. This procedure selects insurance Claims/Estimates 180c datafile claims to determine if any insurance Claims/Estimates 180c datafiles exist with no police report attached. For all selected insurance claim datafiles, the procedure scans the police reports 180g database to determine if any police reports relate to these selected insurance Claims/Estimates 180c datafiles using relevant information, such as VIN, date, time and location of the accident. The procedure will then attach police reports that correlate to the selected claims.

At step 537, the system 30 executes the stored procedure on a predetermined time schedule, attaching any identified correlated insurance Claims/Estimates 180c datafiles and police reports, if a police report is required by business rules module 165c.

System and Method of Administering, Tracking and Managing of Claims Processing System Architecture

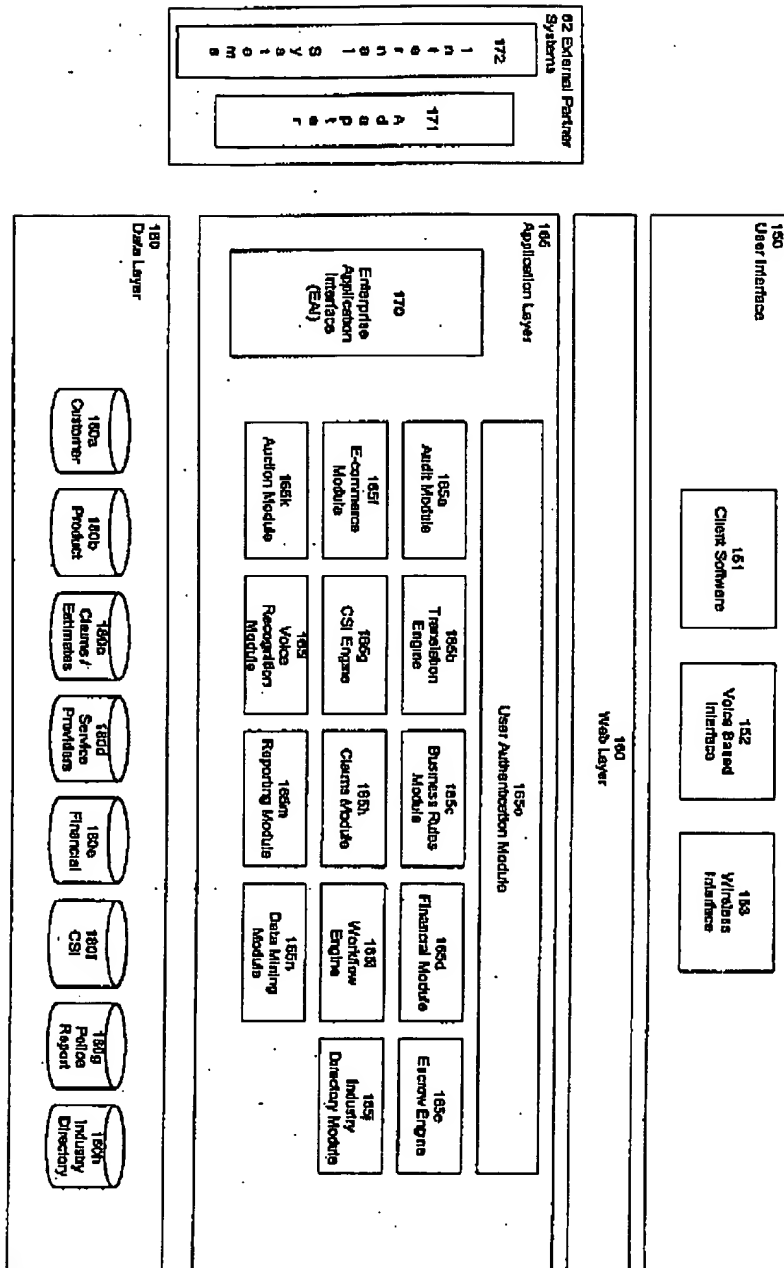
Figure 1.



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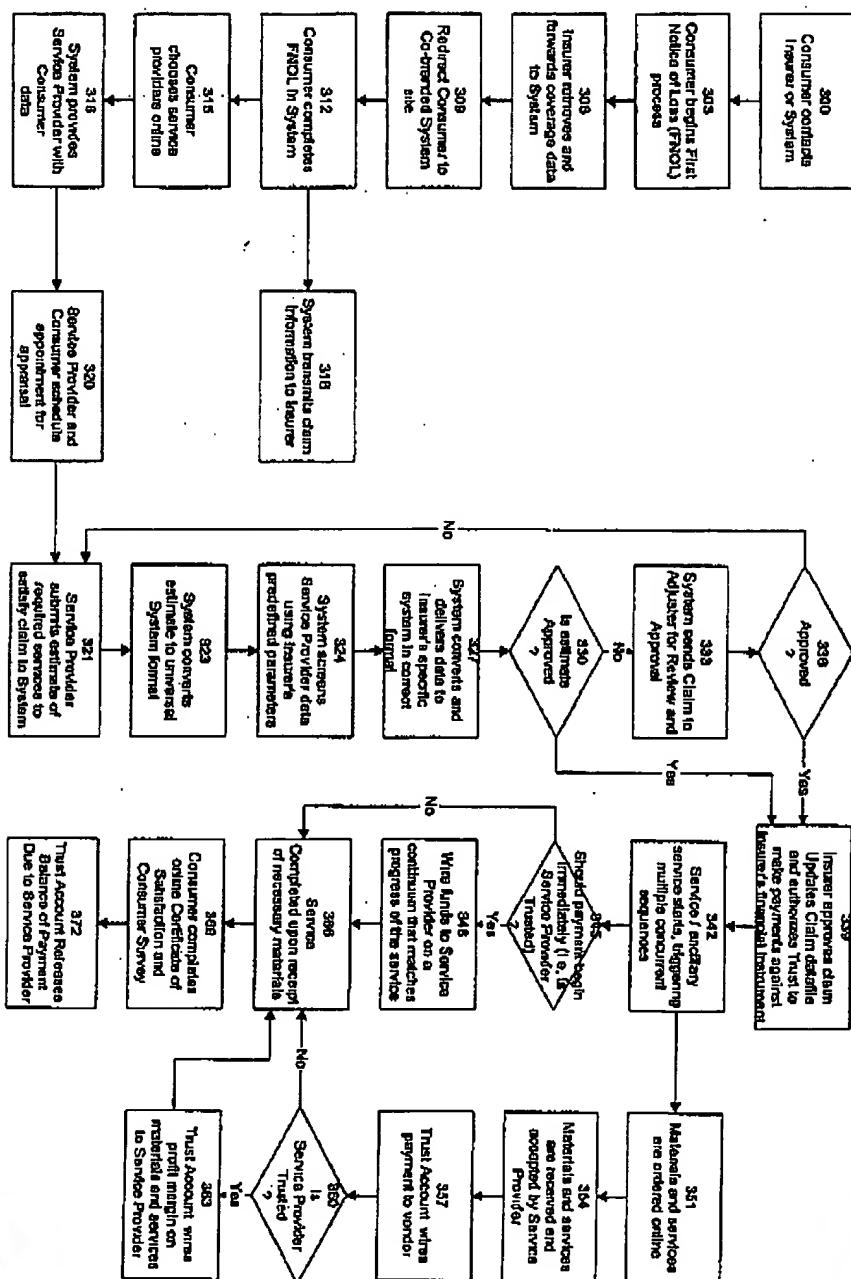
System and Method of Administering, Tracking and Managing of Claims Processing System Components

Figure 2



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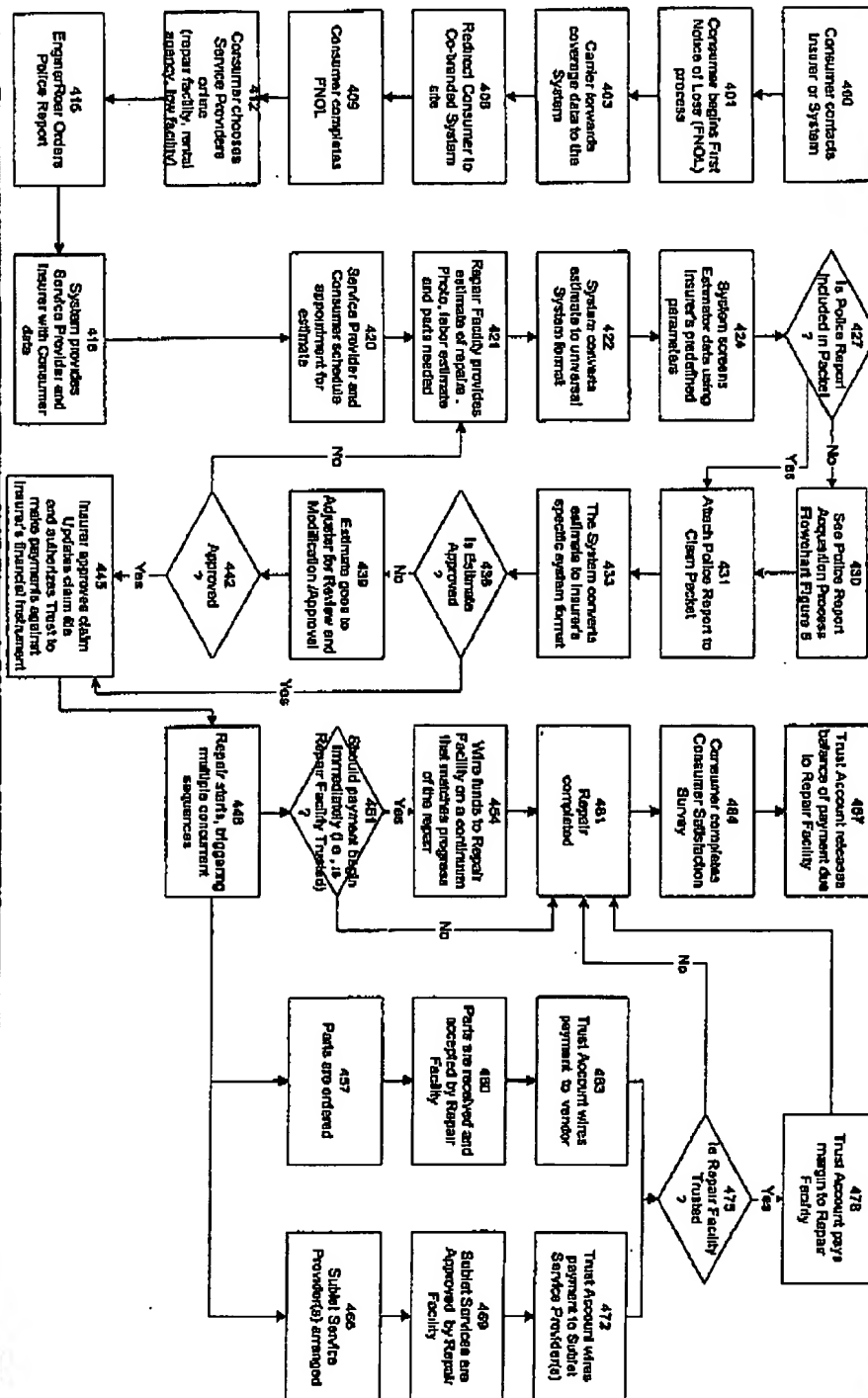
System and Method of Administering, Tracking and Managing of Claims Processing General Insurance Claim Process Flowchart



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System and Method of Administering, Tracking and Managing of Claims Processing
Automobile Insurance Claim Process Flowchart

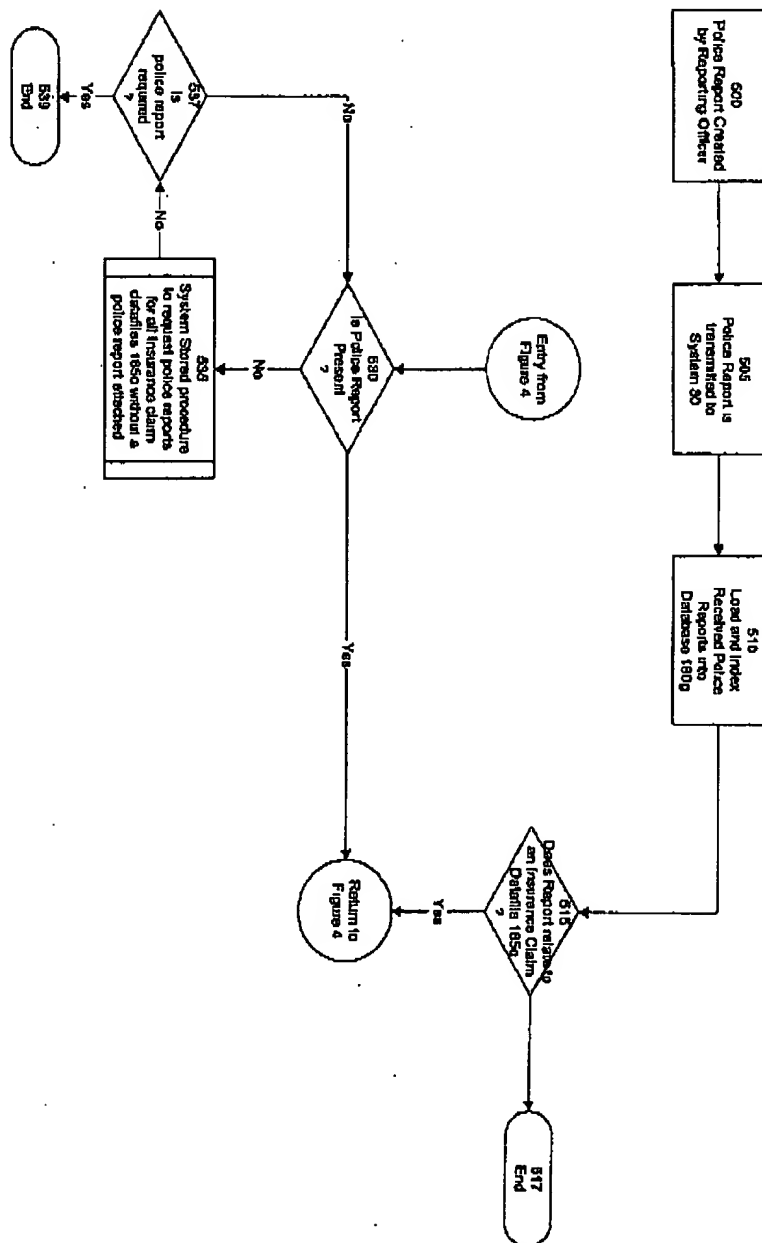
Figure 4



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System and Method of Administering, Tracking and Managing of Claims Processing Police Report Acquisition Process Flowchart

Figure 5

[illegible]

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